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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/659,597	09/11/2000	Oscar Chi-Lim Au	016660-039	4795

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EXAMINER

LEE, RICHARD J

ART UNIT	PAPER NUMBER
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2613

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DATE MAILED: 04/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/659,597

Applicant(s)
Au et al

Examiner
Richard Lee

Art Unit
2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claims 1-38 are subject to restriction and/or election requirement

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other: _____

Art Unit: 2613

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-4, 11, 16, 23, 27, 34, and 38, drawn to a digital video encoder and method of selecting, for a block of a first image based on an array of pixels, a similar block of a second image based on the array of pixels, classified in class 375, subclass 240.12.
 - II. Claims 5, 17, and 28, drawn to a method of selecting, for a block of a first image based on an array of pixels, a similar block of a second image based on the array of pixels, classified in class 375, subclass 240.16.
 - III. Claims 6, 7, 18, 19, 29, and 30, drawn to a method of selecting, for a block of a first image based on an array of pixels, a similar block of a second image based on the array of pixels, classified in class 375, subclass 240.24.
 - IV. Claims 8, 20, and 31, drawn to a method of selecting, for a block of a first image based on an array of pixels, a similar block of a second image based on the array of pixels, classified in class 375, subclass 240.14.
 - V. Claims 9, 21, and 32, drawn to a method of selecting, for a block of a first image based on an array of pixels, a similar block of a second image based on the array of pixels, classified in class 348, subclass 409.1.
 - VI. Claims 10, 22, and 33, drawn to a method of selecting, for a block of a first image based on an array of pixels, a similar block of a second image based on the array of pixels, classified in class 348, subclass 420.1.

Art Unit: 2613

VII. Claims 12, 13, 15, 24, 26, 35, and 37, drawn to a method of selecting, for a block of a first image based on an array of pixels, a similar block of a second image based on the array of pixels, classified in class 348, subclass 409.1.

VIII. Claims 14, 25, and 36, drawn to a method of selecting, for a block of a first image based on an array of pixels, a similar block of a second image based on the array of pixels, classified in class 375, subclass 240.1.

2. The inventions are distinct, each from the other because:

Inventions Groups I, II, III, IV, V, VI, VII, and VIII are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions are Groups I, II, III, IV, V, VI, VII, and VIII. Group I involves a digital video encoder and method of selecting, for a block of a first image based on an array of pixels, a similar block of a second image based on the array of pixels, comprising selecting the similar block of the second image as the determined block for which the determined mismatch value is lowest, wherein if a predetermined termination criterion is met, the search terminates and, among the determined blocks of the second image, the determined block having the minimum mismatch value is selected. Group II involves a method of selecting, for a block of a first image based on an array of pixels, a similar block of a second image based on the array of pixels, comprising wherein the reference point is determined based on a previously-derived motion vector for each of one or more further blocks of the first image adjacent to the

Art Unit: 2613

block of the first image, and a previously-derived motion vector of a block of a third image corresponding to the block of the first image. Group III involves a method of selecting, for a block of a first image based on an array of pixels, a similar block of a second image based on the array of pixels, comprising defining at least one search zone in the array, labelled by integer index i , each i -th zone being composed of pixels for which the sum of the absolute vertical position difference (y) in between that pixel and the reference pixel and the absolute horizontal position difference (x) between that pixel and the reference pixel is equal to i . Group IV involves a method of selecting, for a block of a first image based on an array of pixels, a similar block of a second image based on the array of pixels, comprising defining a search window in the array, the window having a size according to a size parameter. Group V involves a method of selecting, for a block of a first image based on an array of pixels, a similar block of a second image based on the array of pixels, comprising defining at least one second reference pixel of the second image as a pixel for which the determined mismatch value is lowest and defining at least one second search zone in the array, labelled by integer index j , surrounding the second reference pixel. Group VI involves a method of selecting, for a block of a first image based on an array of pixels, a similar block of a second image based on the array of pixels, comprising wherein step (iii) is terminated upon determining that for all pixels in the zone for which $i=2$, the determined mismatch is greater than the determined mismatch of a pixel in the zone $i=1$ of the reference pixel. Group VII involves a method of selecting, for a block of a first image based on an array of pixels, a similar block of a second image based on the array of pixels, comprising wherein step (iv) is terminated

Art Unit: 2613

upon at least one termination criterion being satisfied, the termination criterion being defined in terms of a respective threshold value. Group VIII involves a method of selecting, for a block of a first image based on an array of pixels, a similar block of a second image based on the array of pixels, comprising deriving a zone number M and defining in the array a number of zones equal to the zone number, the zones being labelled by an integer index $i=1, \dots, M$, the zones surrounding the reference pixel and having an increasing radius for increasing i . Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

3. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Groups II, III, IV, V, VI, VII, and VIII restriction for examination purposes as indicated is proper.

4. Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

5. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Art Unit: 2613

or faxed to:

(703) 872-9314, (for formal communications intended for entry)

(for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA., Sixth Floor (Receptionist).

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Lee whose telephone number is (703) 308-6612. The Examiner can normally be reached on Monday to Friday from 8:00 a.m. to 5:30 p.m, with alternate Fridays off.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group customer service whose telephone number is (703) 306-0377.


RICHARD LEE
PRIMARY EXAMINER

Richard Lee/rl



4/15/03